

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



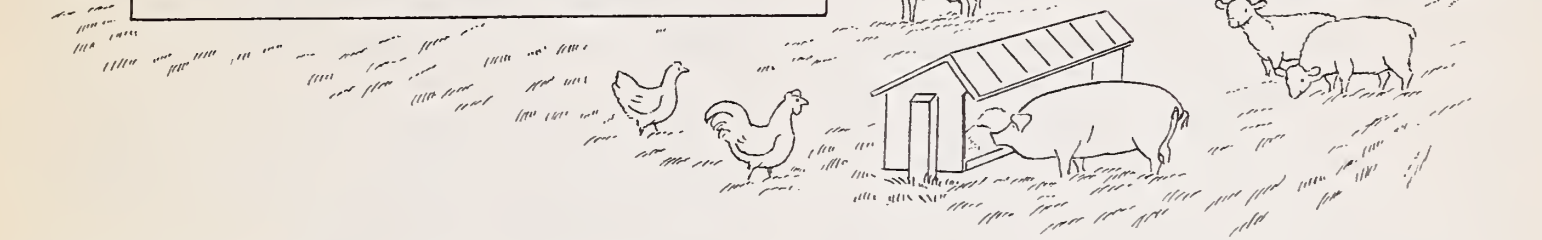
1.9133  
A20f2  
Cap 2

# SAVE GRAIN BY CONTROLLING

## FACT SHEET

U. S. DEPARTMENT OF AGRICULTURE  
Office for Food and Feed Conservation  
Information Supplied by  
Agricultural Research Administration  
Bureau of Animal Industry

# Internal Parasites



**I**NTERNAL PARASITES are the most treacherous of all livestock pests. Their work is hidden, and it goes on day and night. It is estimated that they cost the Nation \$125,000,000 or more annually.

Parasites cause infested animals and poultry to take more grain and other feeds than healthy stock in order to produce the same amount of meat, milk, eggs, and related products. They increase the number of deaths of young animals, and often stunt the survivors. They cause marketed animals to be inferior, and often are the cause of condemnation of parts and carcasses. At no time can farmers afford to support such parasites; the need for control is especially called for now in view of the world-wide demand for grain *to feed people*. Conservation also will help the livestock industries to maintain sound foundation stock from which livestock production can be expanded when grain supplies are again plentiful.

Losses caused by parasites have been demonstrated in varied experiments. A group of young pigs exposed to an assortment of parasites gained less than a third as much weight as their protected litter mates. Pigs with moderate infestation took nearly a pound of feed more for each pound of gain than did protected pigs, and also required 5 weeks longer to reach market weight.

Sheep experimentally infested with nodular worms lost nearly a pound a week for 17 weeks while uninfested lambs gained 2.4 pounds weekly. Among fattening steers, those fairly well protected gained 10 to 30 percent faster than those not protected, and gave 3 to 6 times more dollar return on the investment.

Internal parasites can be controlled to a highly rewarding degree. To obtain satisfactory control, however, it is important for farmers and ranchers to know:

1. The right control material, and where to get it.
2. The correct formula to use.
3. The proper method of treatment.
4. The time when parasites are most vulnerable.

Measures and treatments which will help control the more common and the more injurious species of internal parasites are outlined below. In many cases it will be advisable for farmers and ranchers to consult a veterinarian, especially on diagnosis and on administration of dangerous drugs.

**CAUTION.**—Some of the chemicals and compounds which are recommended for use in this fact sheet are highly poisonous and inflammable. Cautions are included where the more dangerous compounds are recommended. Follow directions on container carefully.

### Sheep Parasites

*Gastrointestinal (stomach and intestinal) round worms.*—The free-choice administration of phenothiazine in salt is a simple, effective control measure. It consists of setting before flocks a mixture of phenothiazine, 1 part, and loose salt, 9 or 10 parts, by weight, as a means of self-medication. The medicated salt should be sheltered from the weather and the supply replenished when necessary. Sheep should be kept on the free-choice course throughout the grazing season. The system should be started early enough to avoid contamination of spring pastures by infested animals in breeding flocks. Animals that do not consume enough medicated salt to keep their parasites in check should be given doses of phenothiazine. Ordinarily, also, it is a good idea to treat all animals

of a breeding flock at least once during late winter or early spring before they are turned into new pasture. Doses of phenothiazine consisting of 20 to 40 grams (usually 25 grams or about 1 ounce) should be given. The drug may be given in capsules, as a drench, or in any suitable feedstuff, *but it should not be given to ewes during the last month of pregnancy.*

**Lungworms.**—There is no reliable medicinal treatment for lungworms. Advantage may be taken, however, of the relatively self-limiting nature of infections by removing infected animals from pasture and keeping them in clean quarters until the condition improves. Insofar as possible, pastures should be reasonably dry and well-drained.

**Liver flukes.**—In areas where flukes cause losses, control is best achieved by treating all animals of infected flocks with 1 cubic centimeter doses of pure carbon tetrachloride. Two doses at an interval of 3 to 4 weeks are usually given in late fall. Good drainage, plus filling in and fencing off low, swampy areas, are helpful control measures. Applications of copper sulfate to snail-infested areas to control this intermediate host of flukes are also beneficial.

## Cattle Parasites

**Stomach and intestinal roundworms.**—Treatment of calves and young stock with phenothiazine, especially prior to the grazing season, gives good results. Doses of 10 grams (about  $\frac{1}{2}$  ounce) per hundredweight are effective against common stomach worms, trichostrongyles, and nodular worms, but larger doses are required for removal of one of the more injurious stomach worms, known as *Ostertagia*. Since *Ostertagia* occurs widely and is capable of severe damage to calves, a dose of 20 grams (about  $\frac{2}{3}$  ounce) for each estimated hundredweight is generally recommended. The total dose, however, should not exceed 60 grams, or about 2 ounces. The drug may be given in capsules, boluses (large pills), prepared suspensions, or feed.

**Lungworms.**—Prevention is the best control since there is no known effective medicinal treatment for calves with this ailment. Low, wet pastures should be avoided and permanent pastures should not be overstocked, even when well-drained. Resting and rotation of pastures are desirable. Calves and cattle that show signs of lungworm infection should be removed from pasture to clean quarters until they no longer show symptoms.

**Liver flukes.**—In cattle, the recommended drug to use against liver flukes is hexachloroethane. Prepared 50 percent suspensions of this chemical are admin-

istered by drenching in doses of  $6\frac{1}{2}$  ounces for mature animals and  $3\frac{3}{4}$  ounces for calves over 3 months. Although there is no system of control on which complete reliance can be placed, treatments in the spring and fall appear to offer the most promise of satisfactory results.

## Horse Parasites

**Strongyles.**—Phenothiazine is the most effective drug for controlling these worms. As a grain-saving measure, every effort should be made to minimize inefficiencies of farm work animals due to these parasites. Unless there is evidence of kidney disease, severe anemia, or extreme emaciation, the drug may be given safely to animals of average size in doses of 30 grams, or approximately 1 ounce. A good system consists in giving 5 grams daily in feed for 6 days. Constipation should be guarded against, and the diet should be adequate in calcium and protein.

**Large roundworms and stomach bots.**—Carbon disulfide, the standard treatment against ascarids (large roundworms) and bots, is administered in prepared capsules or boluses (large pills) at the rate of 6 fluid drams (24 cubic centimeters) for a 1,000-pound animal after a preparatory fast of about 18 hours.

A mixture of phenothiazine and carbon disulfide may be given as a single treatment for these parasites. This is practicable in late fall or early winter when the need for medicinal treatment against bots and preventive measures against strongyles is especially indicated.

**CAUTION.**—Carbon disulfide is highly poisonous. Vapors are inflammable and highly explosive. Handle only out-of-doors.

## Swine Parasites

**Large roundworms.**—The most effective drug for use against large roundworms (ascarids) is sodium fluoride. This chemical (technical grade, tinted) is given in *dry* ground feed at a concentration of 1 percent by weight for a period of 1 day. It should not be given in garbage, slops, milk, wet feed, or in capsules. There should be no fasting or purgation, but the animals should be accustomed to the feed in which the chemical is given and be slightly underfed the day before treatment. Softening of feces and occasional vomiting are sometimes caused by the treatment, but the effects are transitory. *The treatment should not be given to pigs exhibiting symptoms of intestinal disturbance, such as diarrhea, or to pregnant sows.*

The frequency of treatment for best control of large roundworms has not been well-determined. Taking into account both the cycle of the parasite and the fact that a potentially poisonous chemical should not be used often, it would appear that a treatment shortly after weaning and another about 2 months later should be adequate. Ordinarily, market hogs should require no further medication against this parasite.

**CAUTION.**—Sodium fluoride is poisonous. Containers should be labeled conspicuously and stored out of reach of children and pets. Because there have been instances where sodium fluoride has been mistaken for flour, with fatal results, some States now require that it be colored before being sold. Purchase it in colored form whenever possible.

*Stomach and intestinal parasites in general.*—Whole milk, skim milk, or whey can be used to protect pigs against nodular worms, whipworms, and to a lesser extent, large roundworms. The milk or whey should be fed daily in place of one grain feeding, or for three successive days at 2-week intervals in place of all other feed.

Good management practices are effective in controlling these parasites, as well as kidney worms, lungworms, and others against which there is no known effective medication. The so-called "McLean County System of Swine Sanitation" is well-known and has found favor with many swine growers. Essentially, the system is based on (1) cleaning farrowing pens thoroughly, (2) washing the sow to remove dirt before putting her in the clean pen, (3) giving the sow and her litter a "clean trip" to clean pasture within a few days to 2 weeks after farrowing, and (4) keeping pigs on clean pasture and away from old hog lots until they are at least 4 months old.

## Poultry Parasites

*Coccidiosis.*—Although this affects other classes of farm animals, it is a particularly serious disease of poultry. Of the types of the disease to which poultry

are subject, cecal coccidiosis or bloody diarrhea causes the heaviest losses. Some of the sulfa drugs have shown promising action in the prevention of this disease and in the control of imminent outbreaks. Although possibly not the most effective of the series, sulfaguanidine has been widely studied and used with considerable success. Chicks should be fed a mash containing 1 percent sulfaguanidine as soon as bleeding is observed in a flock. The medicated mash should be fed for 2 days, followed by ordinary mash for 3 days. Thereafter, an intermittent system of 1 day on medicated mash and 3 days on plain mash may be followed until symptoms subside. A 1 percent sulfaguanidine mash is also effective in stopping an outbreak of the intestinal type of coccidiosis, but in this case the mash must be fed continuously from the first appearance of symptoms, although the period of feeding should not be for more than 1 week.

*Gapeworms.*—Poultry infected with gapeworms should be treated with barium antimonyl tartrate, which is available commercially. Treatment consists of forcing the birds to inhale the powder. Infected birds should be enclosed in a box and exposed to the powder for 15 to 20 minutes. The powder should be injected into the box with a dust gun at a dosage of 1 ounce for about 8 cubic feet. The box should be quite deep, and the powder injected piecemeal at intervals of about 5 minutes during the period of treatment.

*Roundworms and cecal worms.*—Phenothiazine and nicotine may be employed in combination for the removal of both large roundworms and cecal worms from chickens. A simple, effective medicated mash may be made of (1) 15 grams of commercial nicotine sulfate solution (Black Leaf 40), (2) 151 grams of phenothiazine, (3) 287 grams of bentonite, and (4) 44 pounds of ordinary chick mash. The medicated mash may be fed for 3 consecutive days at intervals of 3 weeks, as long as needed for control.

**CAUTION**—Nicotine sulfate is poisonous. Avoid storage with household medicines and follow directions on container strictly.

